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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/787,222

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Toyotaka Yuasa

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EXAMINER

CREPEAU, JONATHAN

ART UNIT

PAPER NUMBER

1795

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/787,222	Applicant(s) YUASA ET AL.	
	Examiner Jonathan Crepeau	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,10,12 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6,10,12 and 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/17/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/21/09 has been entered.

This Office action addresses claims 1, 6, 10, 12, 14, and newly added claims 15-18. Claims 1, 6, 10, 12, 15, and 17 are rejected over JP '951 and WO '881 for substantially the reasons of record, and a new ground of rejection of claims 14, 16, and 18 has been made over these two references and JP '006. This action is non-final.

Claim Rejections - 35 USC § 103

2. Claims 1, 6, 10, 12, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-243951 in view of WO 03/044881.

In the abstract, JP '951 teaches a positive electrode material comprising secondary particles formed from primary particles. The primary particles are connected to each other by sintering. In the abstract, it is disclosed that the material may comprise LiCoO_2 . As disclosed in [0025] of the machine translation, up to 40 mol% of the cobalt may be replaced with metals such as nickel and manganese. Regarding claims 1 and 15, the recitation of "for an automobile" in the

preamble is treated as a statement of intended use and is given little weight (MPEP 2111).

Regarding claims 6, 12, and 17, the mean particle size of the primary particles is 0.4-10 microns.

However, JP '951 does not expressly teach that the length in which the plural primary particles are linked on the section of the secondary particle is equivalent to 10-70% of the length of the whole periphery on the section of the plural primary particles, as recited in claim 1, or that the length is 10-70% "through a substantial center of the secondary particle" as recited in claim 10, or that the length is 50-70% through a substantial center, as recited in claim 15.

However, the reference would motivate the artisan to employ primary particles with relatively large portions of their surfaces touching, thereby rendering the claimed range obvious. As noted above, in the abstract, it is taught that the primary particles are sintered together. Further, in paragraph [0013] of the machine translation, the reference teaches that by sintering, it is possible to raise electric conductivity, to reduce the quantity of a required conducting agent and to raise pack density. The artisan would be motivated by these teachings to manufacture the secondary particles such that relatively large portions of the surfaces of the primary particles are touching each other. Accordingly, the limitations in the independent claims that the length in which the primary particles are linked on the section of the secondary particle is equivalent to 10-70% (50-70%) of the length of the whole periphery on the section of the primary particle would be rendered obvious.

JP '951 further does not expressly teach that the positive electrode material comprises $\text{Li}_a\text{Mn}_x\text{Ni}_y\text{Co}_z\text{O}_2$, as recited in claims 1, 10 and 15.

WO 03/044881 teaches an $\text{Li}_x\text{Mn}_a\text{Ni}_b\text{Co}_c\text{O}_2$ material in the abstract. Example 3 in Table 1 discloses a composition falling within the subscript ranges recited in claims 1, 10, and 15.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the $\text{Li}_x\text{Mn}_a\text{Ni}_b\text{Co}_c\text{O}_2$ composition of WO '881 as the active material of JP '951. In the abstract, WO '881 teaches that a positive electrode and a lithium cell using this material have a high energy density and excellent charging/discharging cycle performance. Accordingly, the artisan would be motivated to use the $\text{Li}_x\text{Mn}_a\text{Ni}_b\text{Co}_c\text{O}_2$ composition of WO '881 as the active material of JP '951.

3. Claims 14, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-243951 in view of WO 03/044881 as applied to claims 1, 6, 10, 12, 15, and 17 above, and further in view of JP 2001-085006.

JP '951 further does not expressly teach that the voidage of the secondary particle is 2.5-35%, as recited in claims 14, 16, and 18.

JP 2001-085006 teaches a positive electrode material comprising a lithium composite oxide in the form of primary particles flocculated into secondary particles (see abstract). The secondary particle has a voidage of 30% or less, preferably 10-20% (see [0029]).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the voidage disclosed by JP '006 in the secondary particle of JP '951. In [0029], JP '006 teaches that the range of 10-20% results in better cycle property. Accordingly, the artisan would be motivated to use the voidage disclosed by JP '006 in the secondary particle of JP '951.

Furthermore, in [0013] of JP '951, it is taught that "pack density" may be increased by the sintering, which would be the inverse of the claimed voidage. Accordingly, the voidage may be reduced to a relatively low value, i.e., to the values disclosed by JP '006.

Response to Arguments

4. Applicant's arguments filed January 21, 2009 have been fully considered but they are not persuasive. Applicants assert that in JP '951, at least a part of the fine primary particles in a secondary particle are arranged in radiation toward outside from the center of the secondary particles, and that the gaps between the particles vary between the periphery and the center of the secondary particle. However, even if this characterization of JP '951 is accurate (which the Examiner does not concede), it is submitted that the claim language is still broad enough to read on such a radial structure. The language of the independent claims does not specify *which* primary particles inside the secondary particle must have the claimed characteristic, since, for example, claim 1 merely recites "the plural primary particles" which are located on "the section" of the secondary particle. Thus, it is submitted that a particular discrete portion of the secondary particle of JP '951 containing a plurality of primary particles is sufficient to meet the claim language. As stated in the previous Office action, it appears that Applicant's intent is to recite that all of the primary particles in the secondary particle have the claimed characteristic, however, this is not recited in the claims.

Additionally, the Examiner previously made remarks on the perceived similarity in the way the particles of the present invention and those of JP '951 are made. In response, Applicant

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has attempted to show structural differences in these particles based on the submission of photographs on "Sheet No. 1" and "Sheet No. 2." The arguments and evidence have been considered, but are not persuasive for the following reasons: First, the limitations (i.e., sintering at a specific temperature) on which Applicant relies are not recited in the claims. Second, it is believed that any evidence should be submitted and attested to in the form of a declaration under 37 CFR 1.132, which has not yet been done. Furthermore, regarding the photographs, there is no identification of the materials involved between sheet nos. 1 and 2, which would also be necessary. Applicants further state that the sintering temperature difference of 75 C produces different products, as shown particularly in the photos at magnification of 20000. However, it is the Examiner's position that no clear difference in structure can be seen between the photos of sheets 1 and 2, except a different in absolute particle size between both the primary particles and secondary particles. Additionally, as previously stated by the Examiner, the disclosure of JP '951 does not appear to be limited to any specific sintering temperature.

Accordingly, based on the record as a whole, it is the position of the Office that the instant claimed invention has not been shown to be patentably distinguishable from the product of JP '951 as modified by WO '881. As such, the rejections under 35 USC 103 above are still believed to be proper.

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Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299.

The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
March 10, 2009